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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/750,704 | 01/02/2004 | Yoshihide Hoshino | KOY-0031 | 4100 |
| 23413 | 7590 | 12/08/2006 | EXAMINER | |
| CANTOR COLBURN, LLP | | | MRUK, GEOFFREY S | |
| 55 GRIFFIN ROAD SOUTH | | | ART UNIT | |
| BLOOMFIELD, CT 06002 | | | PAPER NUMBER | |

2853

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,704

Applicant(s)

HOSHINO ET AL.

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7 November 2006 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsumoto et al. (US 6,523,948 B2).

With respect to claim 1, Matsumoto discloses a liquid jetting apparatus (Fig. 1, element 9) comprising:

- a head (Fig. 16A, element 131) for jetting a liquid of photo curable type which is cured by an irradiation with light (Column 14, lines 39-43) ;

Art Unit: 2853

- a light source (Fig. 19, element 152) for irradiating the liquid of photo curable type jetted on an object from the head;
- at least one of a temperature sensor (Fig. 1, element S1) for detecting a temperature adjacent to the object (Column 12, lines 29-30), and
- a humidity sensor (Fig. 1, element S2) for detecting a humidity adjacent to the object (Column 12, lines 29-30); and
- a control section (Fig. 1, element 31) for controlling an illumination of light which is radiated from the light source (Column 12, lines 30-34),
- wherein the control section controls the illumination (Column 14, lines 45-49, i.e. intensity adjustor) on the basis of a result detected by at least one of the temperature sensor and the humidity sensor (Column 12, lines 25-39).

With respect to claim 2, Matsumoto discloses the control section (Fig. 1, element 31) stores a relationship between at least one of a temperature (Fig. 1, element S1) and a humidity (Fig. 1, element S2), and

- a liquid cure necessary illumination value of light necessary for curing the liquid corresponding to at least one of a humidity and a temperature as a first data table (Fig. 8, element 63c; Column 12, lines 25-39),
- the control section specifying the liquid cure necessary illumination value from the first data table (Fig. 8, element 63a) on the basis of the result to control the illumination for turning the light source on to make the illumination be not less than the liquid cure necessary illumination value (Column 8, lines 40-54).

With respect to claim 3, Matsumoto discloses an illumination detection sensor (Fig. 19, element 160) for detecting the illumination (Column 14, lines 52-56),

- wherein the control section (Fig. 1, element 31) stores a second data table (Fig. 8, element 63d) in which an illumination value obtained by irradiation with light radiated from the light source is divided into a plurality of illumination levels (Fig. 19, element 161), and
- the control section rewrites (Column 12, lines 34-39) illumination values corresponding to each of the illumination levels in the second data table on the basis of a result detected by the illumination detection sensor (Fig. 8, element 63c), selects an illumination level having an illumination value not less than the liquid cure necessary illumination value, and controls the illumination for turning the light source on to make the illumination be the illumination value of the illumination level selected (Column 12, lines 10-24).

With respect to claim 4, Matsumoto discloses the liquid jetting apparatus (Fig. 1, element 9) comprises

- a plurality of light sources (Fig. 16A, element 130), and the control section (Fig. 8, element 31) judges whether the liquid cure necessary illumination value exceeds an upper limit of the illumination value obtained by irradiation with light radiated from the light source (Column 2, lines 37-41), and
- when the control section judges that the liquid cure necessary illumination value specified exceeds the upper limit, the control section turns on the other light source different from the light source to make a total value of illuminations of light

from the light source and the other light source exceed the liquid cure necessary illumination value (Column 8, lines 16-25).

With respect to claim 5, Matsumoto discloses the liquid jetting apparatus of claim 2, further comprising

- a spare light source (Column 14, lines 21-34) other than the light source for irradiating the liquid jetted on the object from the head with light (Column 13, lines 36-41),
- wherein the control section (Fig. 1, element 31) judges whether the liquid cure necessary illumination value exceeds an upper limit of the illumination value obtained by irradiation with light radiated from the light source, and
- when the control section judges that the liquid cure necessary illumination value specified exceeds the upper limit, the control section controls the spare light source to turn on (Column 13, lines 53-55).

With respect to claim 6, Matsumoto discloses the liquid cure necessary illumination value rises as a humidity (Fig. 1, element S2) becomes high in the first data table (Fig. 8, element 63c; Column 12, lines 25-39).

With respect to claim 7, Matsumoto discloses the liquid cure necessary illumination value corresponds to both a temperature (Fig. 1, element S1) and a humidity (Fig. 1, element S2) in the first data table (Fig. 8, element 63c; Column 12, lines 25-39).

With respect to claim 8, Matsumoto discloses the liquid cure necessary illumination value depends (Column 2, lines 37-41) upon a type of the liquid in the first data table (Column 15, lines 10-22).

With respect to claim 9, Matsumoto discloses the object comprises a recording medium (Fig. 1, element 17), and the liquid comprises an ink having a color material as a composition (Column 15, lines 40-42) .

With respect to claim 10, Matsumoto discloses the light comprises an ultraviolet ray (Fig. 19, element 157), and the liquid comprises an ink (Fig. 19, element 156) which is cured by an irradiation with an ultraviolet ray.

With respect to claim 12, Matsumoto discloses a liquid jetting apparatus (Fig. 1, element 9) comprising:

- a head (Fig. 16A, element 131) for jetting a liquid of photo curable type which is cured by an irradiation with light (Column 14, lines 39-43);
- a light source (Fig. 19, element 152) for irradiating the liquid of photo curable type jetted on an object from the head;
- a humidity sensor for detecting a humidity (Fig. 1, element S2) adjacent to the object (Column 12, lines 29-30); and
- a control section (Fig. 1, element 31) for controlling an illumination of light which is radiated from the light source, wherein the control section controls the illumination on the basis of a result detected by the humidity sensor (Column 14, lines 45-49, i.e. intensity adjustor) .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over
Matsumoto et al. (US 6,523,948 B2) in view of Ohta et al. (6,211,265 B1).

Matsumoto discloses the liquid comprises ink (Column 1, lines 51-54).

However, Matsumoto fails to disclose the liquid comprises a cationic
polymerization ink containing a cationic polymerizing compound as a composition.

Ohta discloses a water base ink set for ink jet recording where "The inks of the
ink set according to the present invention contains a water-soluble cationic polymer
having a primary amino group in its molecule" (Column 4, lines 21-23).

At the time of the invention, it would have been obvious to one of ordinary skill in
the art to use the water based ink set disclosed by Ohta in the ink jet printer disclosed
by Matsumoto. The motivation for doing so would have been "It is considered that
realization of this waterfastness is derived from the fact that the water-soluble cationic
polymer has high affinity for cellulose fibers of the recording paper and consequently
functions as a binder for fixing the colorant onto the recording paper" (Column 4, lines
28-31).

Response to Arguments

Applicant's arguments filed 5 October 2006 have been fully considered but they are not persuasive. The applicant's arguments with respect to claims 1-11 are addressed in the advisory action dated 19 October 2006.

The applicant's argument that "Matsumoto does not disclose changing the intensity of illumination according to the environmental temperature or humidity. Changing intensity is absolutely different from changing the heating amount of a heating device in its object and effect. Although raising the temperature of the recording medium or ink may activate curing of ink, such raising the temperature without changing illumination of light is not equivalent to supply an illumination of light for curing droplets sufficiently" is not persuasive.

As stated in the non-final rejection Matsumoto discloses:

- "drying speed correlated with environmental temperature or humidity may be previously obtained in view of conditions of placing the ink jet printer, so as to compensate for drive data of the heating elements. As illustrated in FIG. 1, a temperature sensor S1 and a humidity sensor S2 are provided in the ink jet printer. Output signals from the sensors S1 and S2 are input to the system controller 31. Then the drive data compensator 68 in the system controller 31 in FIG. 8 compensates for drive data to be applied to the heating elements according to the output signals" (Column 12, lines 25-34) and
- "An ultraviolet emitting laser unit (UVL) 152 as ultraviolet ray emitter unit is disposed instead of the IRLDs 130 of FIG. 16, and extends in parallel with an.

Art Unit: 2853

array of nozzles 153 in an ink jet head 154. After recording material 155 is provided with an image by the ink jet head 154, the ultraviolet emitting laser unit 152 is controlled by an ultraviolet intensity adjustor 160 or control unit for intensity of ultraviolet rays 157 according to an ejected amount of an ink droplet 156, which is cured or hardened by the ultraviolet rays 157. This control with the ejected amount is effective in efficiently curing the ink droplet 156" (Column 14, lines 40-50). Thus, Matsumoto meets the claimed limitations of claims 1-12.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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12/5/06
MANISH S. SHAH
PRIMARY EXAMINER